

LISTING OF THE CLAIMS

1-5. (Canceled).

6. (Currently amended) A heat control apparatus for a circuit, comprising:

a transparent cooling mechanism tightly secured to a semiconductor integrated circuit, the transparent cooling mechanism having a hollow part;

an image capturing sensor which captures an image of the semiconductor integrated circuit through the cooling mechanism;

a heat detecting unit which acquires the heat generation condition of the semiconductor integrated circuit from an inspection image captured by the sensor; ~~and~~

an analyzing unit which analyzes the acquired heat generation condition; and

a driving mechanism for causing a coolant to flow in the hollow part of the transparent cooling mechanism, wherein the hollow part is provided so as not to overlap the semiconductor integrated circuit.

7. (Original) The heat control apparatus for a circuit according to claim 6, wherein the cooling mechanism is a silicon heat spreader and comprises a cooling means for cooling the heat spreader.

8-11. (Canceled).

12. (Currently amended) The heat control apparatus for a circuit according to claim ~~9~~6, wherein the driving mechanism changes the direction of flow of the coolant as appropriate.

13. (Original) The heat control apparatus for a circuit according to claim 12, wherein the analyzing unit synthetically analyzes heat generation conditions detected prior to and subsequent to a change in the direction of flow of the coolant.

14. (Currently amended) The heat control apparatus for a circuit according to claim 96, wherein the analyzing unit analyzes the heat generation condition by taking into account temperature gradient dependent on the direction of flow of the coolant.

15-18. (Canceled).

19. (New) The heat control apparatus for a circuit according to claim 6, wherein the heat detecting unit acquires the temperature distribution of the semiconductor integrated circuit from the inspection image, and if the temperature exceeds a predetermined threshold value at any location in the semiconductor integrated circuit, the cooling control unit enhances the cooling capability of the cooling means.

20. (New) The heat control apparatus for a circuit according to claim 6, further comprising:
an operation control unit for controlling the operating condition of the semiconductor integrated circuit in accordance with the acquired heat generation condition.

21. (New) The heat control apparatus for a circuit according to claim 20, wherein the heat detecting unit acquires the temperature distribution of the semiconductor integrated circuit from the inspection image, and if the temperature exceeds a predetermined threshold value at any location in the semiconductor integrated circuit, the operation control unit reduces a load per unit time in the location where the temperature exceeds the threshold value.